Department of Veterans Affairs

VistA Evolution User Experience Increment 2

Requirements Specification Document - DRAFT

April 2014

Version 1.1

Revision History

Date	Version	Description	Author
5/5/2014	1.2	Final Approval for MS 1	██████████
4/28/2014	1.1	Updates for Increment 2	████████
3/14/2014	1.0	Final Approval for MS 1	█████████
3/12/2014	0.3	Updates after review	███████
2/13/2014	0.2	Updates to Initial Draft	████████████
11/18/2013	0.1	Initial Draft	████████████

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1.   Introduction

1.1.   Purpose

The purpose of this Requirements Specification Document (RSD) is to record the results of the requirements gathering processes carried out for the UX project. The UX project utilizes the Agile development methodology; in doing so, the specifications gathering process results in creation of Agile stories such as:

- Epics
- Features
- User Stories

In order to efficiently document the entire UX project's specification processes, artifacts are referenced that serve as a compilation of all Agile stories. At the feature level acceptance criteria are traceable to the RTM referenced in this document. This allows this RSD to serve as a living document and route the reader to the appropriate UX project specification documentation stories.

1.2.   Scope

The scope of this document is limited to the requirements for Increment 2, and is inclusive of Increment 1.

1.3.   References

The following documents were either used in the creation of this RSD or are referenced to avoid having to maintain identical information in two locations:

- VistA UX BRD
- VistA UX System Design Document (SDD)
- VistA UX Prioritized Backlog
- VistA UX Increment 2 Acceptance Criteria Plan
- Requirements Traceability Matrix

2.   Overall Description

2.1.   Accessibility Specifications

Section 508 Compliance Requirements
All Section 508 requirements will be adhered to, where applicable. The Veterans Health Administration (VHA) recognizes that these are Enterprise cross-cutting legal requirements for all developed Electronic & Information Technology (IT). To ensure that these requirements are met, they are addressed through the Enterprise-level requirements maintained by VHA Health IT, Software Engineering and Integration, and Enterprise Requirements Management.

For Increment 2, this section is not applicable. VistA UX consists of middleware; therefore, Accessibility Specifications do not pertain to VistA UX software deliverables (no graphical user interface). All VistA UX documentation follows 508 compliance requirements.

2.2.   Business Rules Specification

The first two increments of the UX Project focus on development of VistA Exchange, the output of which is an enterprise virtual patient record (eVPR) for each patient. Future increments will detail out business rules which will utilize this new VistA Exchange in order to meet future needs.

2.3.   Design Constraints Specification

Design Constraints are documented in the System Design Document (SDD) Section 1.7.

2.4.   Disaster Recovery Specification

The Disaster Recovery Plan for the planned production environment is managed by the Austin Information Technology Center (AITC), as specified in the SDD.

2.5.   Documentation Specifications

VA requires that Operating Units (Program Managers, Project Managers, Analysts) ensure that adequate documentation for VA information systems and its constituent components is maintained, protected when required, and distributed to authorized personnel. Office of Information Technology (OIT) system managers and the OIT Chief/CIO in conjunction with the Information Security Officer (ISO) must ensure that sufficient documentation is developed and maintained to formalize security and operational procedures for the Operating Unit's information systems.

The minimum VA requirements for System Documentation are as follows:

- System documentation must contain descriptions of the system hardware, software, policies, standards, procedures, and approvals related to the system life cycle and formalize the system's security controls.

- VA requires that Operating Units ensure that sufficient documentation exists to provide an operating reference to effectively use software/hardware, and that formal security and operational procedures have been documented, including the adequate completion of Certification and Accreditation (C&A) processes. Documentation must include, but is not limited to, all documentation of the security planning, C&A process, and the configuration management of the hardware and software associated with the system.

- In addition, the Operating Unit must maintain supporting system development documentation, including:

  a. User manuals for software

  b. In-house application documentation (application requirements/program documentation, specifications/change control recommendations)

  c. Any vendor-supplied documentation

  d. Standard operating procedures

  e. Network diagrams and documentation on setups of routers and switches

  f. Software and hardware testing procedures and results

  g. System interconnection agreements

  h. Hardware replacement agreements

  i. Vendor maintenance agreements and maintenance records

The specifications will be found within the UX Production Operations Manual which is in development and will be stored on the UX SharePoint site

2.6. Functional Specifications

Functional specifications relating to this Increment are described within the VistA Evolution User Experience/Core RTM excerpt found in Appendix A. Should updates have occured to the RTM after this document was created, the most up to date RTM can be found at:

This log represents the User Stories the team has documented to support the documented business needs as found in VistA Evolution's User Experience/Core BRD (Feburary 2014).

This increment will focus on development of the following Epics. The BRD User Stories that are in scope for this Increment are included in Appendix A.

Identifier	Theme	Epic
NEED3051/ARCH524 BN 5	eVPR	As a member of the care team, I want a Longitudinal Enterprise Integrated Patient Record supported by an integrated user interface that is patient centric so that I can view and edit VA patient information in a format that is seamless and integrated into my clinical workflow.
NEED3059/ARCH525 BN 14	External Systems	As a member of the care team, I want to be able to access information from external systems so that interoperability is enabled and my patient's longitudinal record is complete.

2.7. Graphical User Interface (GUI) Specifications

Since Increment 2 is not client facing, GUI specifications are not applicable to this increment.

2.8. Multi-divisional Specifications

The purpose of VistA Exchange is to aggregate patient data from multiple VistA instances to a temporary cache. For Increment 2, the eVPR Service shall demonstrate the ability of the VistA Exchange to extract patient domain data from two or more VistA test instances.

2.9. Performance Specifications

The target processing rates for deployed initial components are listed below. The target audiences are the users trying to access patient data.

System	Event	Patient data across VistA instances	Scenario	Minimum Performance Rate
FHIR API	Request Patient Data	4 or less	Data in Cache	95% of response under 2 seconds
FHIR API	Request Patient Data	more than 4	Data in Cache	85% of response under 2 seconds

Target Response Times

User Concurrency

Transactions:

Average number of transactions per hour / user = 15-40

Average number of transactions per day / user = 100-300

Short Term:

Number of sites supported = 10

Number of active concurrent users requesting patient data at the same time = 2,000 (HMP + JLV users)

Total number of HMP users who will start using eHMP = 30,000

Total number of JLV users who will start using eHMP = 13,000

System Availability

99.9% with an assumption that multiple systems are hosted and utilized when a system has to be shut down for routine maintenance or when issues arise.

2.10. Quality Attributes Specification

Quality attributes will be derived from the non-functional requirements and SLAs to be further defined in future increments.

2.11. Reliability Specifications

VistA Exchange shall provide high availability (no more than 1% downtime and performance (over 90% of requests will be served under 2 seconds).

2.12. Scope Integration

VistA Exchange will complement VistA capabilities by creating a single repository of patient record data, the eVPR, extracted from existing patient data that may be stored in one or more individual VistA instances. In this increment, an extract of DoD data will be retrieved.

2.13. Security Specifications

Features within the scope of Increment 2 are described in Section 2.6 and Appendix A of this document.

2.15. Usability Specifications

Usability Specifications are relevant to GUI and are not applicable for this increment.

3. Applicable Standards

Identity Management (IdM)
All Enterprise IdM will be adhered to. VHA recognizes that these are Enterprise requirements for all developed Electronic & IT products. These requirements are applicable to any application that adds, edits, or performs lookups on persons (patients, practitioners, employees, IT users) to systems within the VHA. To ensure that these requirements are met, they are addressed through the Enterprise-level requirements maintained by VHA Health IT, Software Engineering & Integration, and Enterprise Requirements Management.

Health Insurance Portability and Accountability Act (HIPAA) Compliance
The system shall comply with the HIPAA.

Health Level Seven (HL7) Messaging
The HL7 (VistA Messaging) package assists M-based applications conduct HL7 transactions. It enables the facilities to create, transmit, and receive HL7 messages over a variety of transport layers.

Security Requirements
Security Specifications are detailed in Section 2.13of this RSD.

Privacy Requirements
All VA Privacy requirements will be adhered to.

Executive Order Requirements
All executive order requirements will be adhered to.

4. Interfaces

The approach to retrieving data from VistA will be based on a Simple Object Access Protocol (SOAP) Web Service interface to invoke eHMP RPCs. The Web Service API is the interface for consuming applications and is detailed in the System Design Document (SDD).

4.1. Communications Interfaces

Interfaces for Increment 2 include the Master Veteran Index (MVI), Identity and Access Management (IAM), and a test interface with VLER DAS to support future incorporation patient-generated data.

4.2. Hardware Interfaces

Not applicable for Increment 2.

4.3. Software Interfaces

The Software Interfaces applicable for this increment are described in the table below.

ID	Name	Description	Interface
1	eHMP	Web application that will consume the web service API provided by VistA Exchange	eHMP consumes VistA Exchange Patient Record Web Service API
2	Joint Legacy Viewer (JLV)	JLV is a web application that provides a read-only interface for patient data from DoD and VA	Within eHMP, JLV view will utilize the VistA Exchange Patient Record Web Service API
3	VistA	VistA Exchange retrieves data from VistA for a given patient using Remote Procedure Call (RPC) interfaces.	VistA Exchange consumes VistA RPC services.
4	DoD Adaptor	DoD patient domain data	VistA Exchange will retieve DoD Patient domain data from the DoD Adaptor using JMeadows
5	Master Veteran Index (MVI)	VistA Exchange utilizes MVI for lookup of a patient by traits (attended search) and utilized MVI for lookup of identifiers (get Corresponding IDs)	VistA Exchange will invoke MVI

4.4. User Interfaces

Not applicable for Increment 2.

5. Legal, Copyright, and Other Notices

This project shall follow VHA's Release of Information (ROI) regulations when patient information is requested from VistA.

6.   Purchased Components

VistA Exchange will use the InterSystems Cache database which is currently under a VA enterprise license agreement.

6.1.   Defect Source (TOP 5)

This section will be updated in future increments as defects are discovered.

7.   User Class Characteristics

Not applicable for Increment 2.

8.   Estimation

Function Point analysis was requested from Product Development (PD) Project Management Service/Program Planning & Oversight Software Metrics & Estimation Team.

9. Approval Signatures

REVIEW DATE: May 5, 2014

SCRIBE: Anushree Chande

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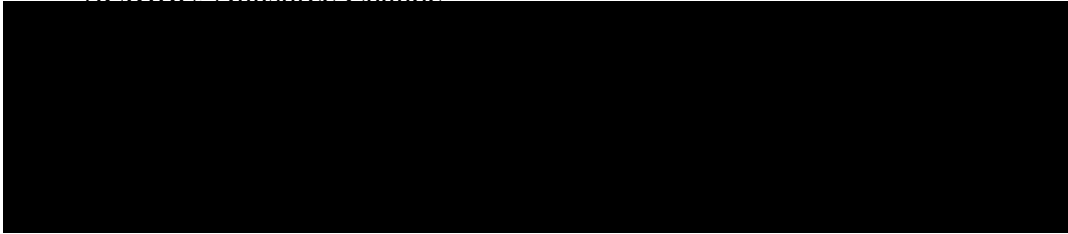
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Date

Project Manager , Integrated Project Team (IPT) Chair

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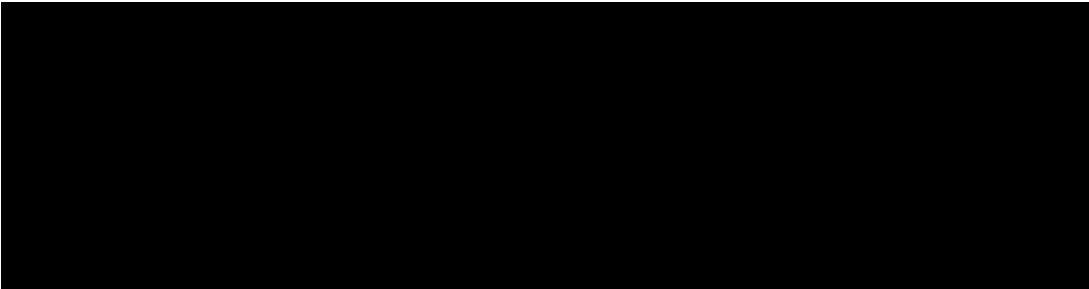
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Date

IT Product Manager

Appendices

A. Appendix A - Increment 2 RTM Excerpt

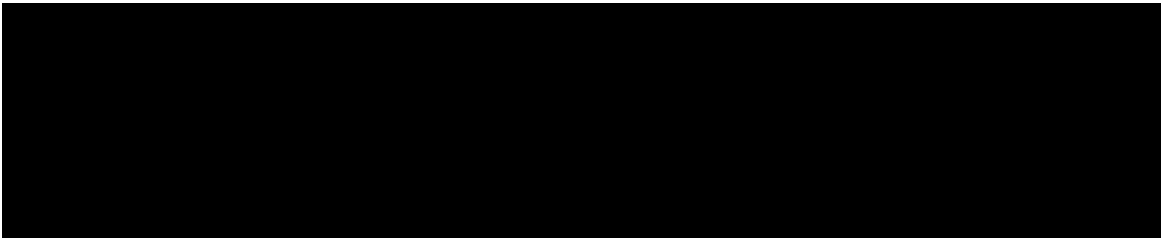| Identifier	User Stories/Business Requirements	PMAS Increment
OWNR/BN5	As a user, I want the ability to view multiple instances of patient assessed content in a single location.	2
OWNR/BN5	As a user, I want my patient's information to be physically decentralized/located in multiple separate geographic locations so that it is accessible anywhere I go.	1,2
OWNR/BN5	As a user, I want to be able to access patient generated data that is available from a **separate** service, so that I can compare the information.	1,2
OWNR/BN5	As a user I want the ability to re-use previously populated patient information.	1,2
OWNR/BN5	As a user, I want the ability to view and manage patient information from the following patient record domains: 1. Laboratory results 2. Inpatient and Outpatient Medications (dispensed and current directions for patient) 3. Vitals 4. Demographics / basic information 5. Allergies 6. Radiology reports	1,2
OWNR/BN5	As a user, I would like to access data from **external sources** from within the longitudinal patient record so that my decisions are based on comprehensive information.	2
OWNR/BN5	As a user, at a minimum, I want to have the same capabilities provided by the VA **Identity and Access Management (IAM)** to the fullest extent for the installation, configuration, development, enhancement, and integration of services so that functinality is not lost.	1,2
OWNR/BN14	As a user, I want an asynchronous inbound interface, following national standards, so that I can receive patient record data from external, recognized entities.	2
OWNR/BN14	As a user I want the UX to leverage the data management service, as appropriate so that the data will be organized and accurate.	2
Identifier	Non-Functional Requirements	PMAS Increment

NONF3066	Provide a flexible infrastructure that can expand with VistA 4 while performing within the constraints of a good user experience (e.g., faster response time and page load than current system).	1, 2
NONF3067	Maintenance, including maintenance of externally developed software incorporated into the VistA 4 application(s), shall be scheduled during off peak hours or in conjunction with relevant maintenance schedules. The business owner should provide specific requirements for establishing system maintenance windows when planned service disruptions can occur in support of periodic maintenance.	2
NONF1608	Information about response time degradation resulting from unscheduled system outages and other events that degrade system functionality and/or performance shall be disseminated to the user community within 30 minutes of the occurrence. The notification shall include the information described in the current Automated Notification Reporting (ANR) template maintained by the VA Service Desk. The specific business impact must be noted in order for OIT to provide accurate data in the service impact notice of the ANR.	2
NONF1609	Provide a real-time monitoring solution to report agreed/identified critical system performance parameters.	2
NONF2820	Critical business performance parameters shall be identified, e.g., transaction speed, response time for screen display/refresh, data retrieval, etc. in a manner that data capture can occur to support metric reporting and support the OIT performance dashboard display. If no such performance metrics are required or provided, there will be no program specific Service Level Agreements (SLA) created, nor shall there be any active/real time monitoring through the OIT Performance Dashboard to provide the business owners any performance metrics.	1, 2
NONF3068	Provide virtualized platforms for all implemented projects and applications.	1, 2
NONF3069	Provide a platform that includes virtualization of front end as well as back end servers.	1, 2
NONF3070	Provide an architectural approach that leverages principles of encapsulation, separation of concern, loose coupling, and business traceability to ensure the reuse of common capabilities rather than rebuilding them.	1, 2
NONF1610	Notification of scheduled maintenance periods that require the service to be offline or that may degrade system performance shall be disseminated to the business user community a minimum of 48 hours prior to the scheduled event.	2
NONF3076	Provide patient-centered data that is consolidated from any number of data sources and transformed into a consistent data model.	1, 2
NONF3085	Technical Help Desk support for the application (e.g., on-line, phone) shall be provided for users to obtain assistance.	2

NONF1614	The IT solution shall be designed to comply with the applicable approved Enterprise SLA.	1, 2
NONF3086	The implementation must be complete by the end of FY 2017.	1, 2
NONF3087	Provide messaging and middleware infrastructure needed to support both Legacy VistA and future VistA 4 deployments.	1, 2
NONF3088	Provide a deployment environment that adheres to a "cloud first" policy, with mechanisms and provisions in place to assess the most appropriate cloud deployment option.	1, 2
	Provide support to the VA National Service Desk by responding to questions and trouble tickets to enable successful operations of the solution in production: a) Troubleshoot network problems by responding to trouble calls, performing fault isolation, and restoring service ;b) Troubleshoot and coordinate resolution of trouble tickets and issues; c) Fix defects discovered in production; d) Respond to questions and trouble tickets reported by the VA Tier 1 National Service Desk; e) Communicate with Tier 2 National Service Desk and end users, as needed; f) Monitor performance and gather statistical data for problem analysis; g) Resolve performance and/or availability issues	2
NONF1617	Ensure the proposed solution meets all VHA Security, Privacy, and Identity Management requirements including VA Handbook 6500 (see Appendix D).	1, 2
NONF3095	Ensure web services security concepts such as identification and authentication, authorization, integrity, non-repudiation, confidentiality, and privacy.	1, 2
	Support role-based and attribute based access controls and integration with enterprise identity management and access management services.	1, 2
	Provide a solution that can integrate with current and future VA, DoD, and iEHR systems and services.	1, 2
	Provide a solution that supports enterprise security requirements	1, 2

B. Appendix B - Acronym List and Glossary

Term	Meaning
A&A	Assessment and Authorization
ACID	Atomicity, Consistency, Isolation, Durability
AITC	Austin Information Technology Center
API	Application Programming Interface
ASCII	American Standard Code for Information Interchange
ASM	ASM Research
BHIE	Bidirectional Health Exchange
BSON	Binary JSON
CDA	Clinical Document Architecture
CDS	Clinical Data Service
CDW	Corporate Data Warehouse
CEM	Clinical Element Model
CHDR	Clinical Health Data Repository
CLIN	Contract Line Item Number
CPMP	Contractor Project Management Plan
CPRS	Computerized Patient Record System
DAO	Data Access Object
DAS	Data Access Service
DB	Database
DBMS	Database Management System
DICOM	Digital Imaging and Communications in Medicine
DFN	Data File Number
DMZ	Demilitarized Zone
DoD	Department of Defense
EDE	Enterprise Development Environment
EHR	Electronic Health Record
EO	Enterprise Operations
eHMP	Enterprise Health Management Platform
eVPR	Enterprise Virtual Patient Record
FHIM	Federal Health Information Model
FHIR	Fast Healthcare Interoperability Resources
FIPS	Federal Information Processing Standards
GUI	Graphical User Interface
HDR	Health Data Repository
Hi2	Health Informatics Initiative
HITSP	Healthcare Information Technology Standards Panel
HL7	Health Level Seven International

Term	Meaning
HMP	Health Management Platform
HTTP	Hyptertext Transfer Protocol
ICN	Integration Control Number
iEHR	Integrated Electronic Health Record
JAR	Java Archive
JDS	JSON Data Store
JLV	Joint Legacy Viewer
JSON	JavaScript Object Notation
JVM	Java Virtual Machine
LOINC	Logical Observation Identifiers Names and Codes
MBI	Moderate Risk Background Investigation
MDHT	Model Driven Health Tools
MDWS	Medical Domain Web Services
MVI	Master Veteran Index
MU	Meaningful Use
NDAA	National Defense Authorization Act
NIEM	National Information Exchange Model
NwHIN	Nationwide Health Information Network
OHT	Open Health Tools
OIT	Office of Information Technology
ONC	Office of National Coordinator
OSEHRA	Open Source Electronic Health Record Agent
PB	Petabyte
PITC	Philadelphia Information Technology Center
PDF	Portable Document Format
PMAS	Project Management Accountability System
PSI	Potentially Shippable Increment
QA	Quality Assurance
RDF	Resource Description Framework
REST	Representational State Transfer
RHEL	Red Hat Enterprise Linux
RPC	Remote Procedure Call
SAM	Scaled Agile Methodology
SAN	Storage Area Network
SDD	System Design Document
SNOMED	Systematized Nomenclature of Medicine
SOR	System of Record
TCP/IP	Transmission Control Protocol/Internet Protocol

Term	Meaning
TRM	Technical Reference Manual
UAT	User Acceptance Testing
URL	Uniform Resource Locator
UX	User Experience
VA	Department of Veterans Affairs
VDEF	VistA Data Extraction Framework
VHA	Veterans Health Administration
VistA	Veterans Health Information Systems and Technology Architecture
VLER	Veteran Lifetime Electronic Record
VM	Virtual Machine
VPR	Virtual Patient Record
VPRes	VistA Presentation Resources
WAR	Web Application Archive
W3C	World Wide Web Consortium
XML	Extensible Markup Language